



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,585	07/11/2003	Donald Albert Paquet JR.	FA1048USNA	3692
23906 7590 01/27/2010 E I DU PONT DE NEMOURS AND COMPANY LEGAL PATENT RECORDS CENTER BARLEY MILL PLAZA 25/1122B 4417 LANCASTER PIKE WILMINGTON, DE 19805				
EXAMINER CHEUNG, WILLIAM K				
ART UNIT		PAPER NUMBER		
1796				
NOTIFICATION DATE		DELIVERY MODE		
01/27/2010		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-Legal.PRC@usa.dupont.com

### Office Action Summary

**Application No.**

10/617,585

**Applicant(s)**

PAQUET ET AL.

**Examiner**

WILLIAM K. CHEUNG

**Art Unit**

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 December 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 and 19-30 is/are pending in the application.
- 4a) Of the above claim(s) 2, 4 and 22-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 5-17, 19-21 and 26-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-506)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ ~~Notice of Informal Patent Application~~
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Request for Continued Examination***

1. The request filed on December 28, 2009 for a Request for Continued Examination (RCE) under 37 CFR 1.53(d) based on parent Application No. 10/617,585 is acceptable and a RCE has been established. An action on the RCE follows.
2. In view of the amendment filed December 28, 2009, claim 18 has been cancelled. Claims 1-17, 19-30 are pending. Claims 2, 4, 22-25 are drawn to non-elected subject matter. Claims 1, 3, 5-17, 19-21, 26-30 are examined with merit.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1, 3, 5-11, 13-16, 18-21, 26-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1 (line 9, 11), claim 26 (line 10, 11), the recitations "up to 10%" are considered indefinite because the recitations include addition ranges "from 0 to less than 0.01%" that is not support by the claims originally filed. Therefore, the recitations

"up to 10%" are considered new matter. Applicants are required to submit an amendment to remove the new matter.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3, 5-11, 13-16, 18-21, 26-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Hintze-Bruning et al. (US 6,297,314).

1. (Currently Amended) A coating composition comprising crosslinkable and crosslinking components, wherein said crosslinkable component comprises:

a copolymer having on an average 2 to 25 crosslinkable groups selected from the group consisting of hydroxyl, acetoacetoxy, carboxyl, primary amine, secondary amine, epoxy and a combination thereof; a weight average molecular weight ranging from about 1000 to 4500; a polydispersity ranging from about 1.05 to 2.5; wherein said copolymer is polymerized from a monomer mixture comprising one or more non-functional acrylate monomers and one or more functional methacrylate monomers provided with said crosslinkable groups, and optionally one or both of: (i) ~~0-04%~~ up to 10% by weight of one or more functional acrylate monomers provided with said crosslinkable groups and (ii) ~~0-04%~~ up to 10% by weight of one or more non-functional methacrylate monomers; wherein said functional methacrylate monomers are present in an effective amount for producing said copolymer having on an average 2 to 25 crosslinkable groups and having said weight average molecular weight; wherein said copolymer is produced by free radical polymerization of said monomer mixture at a polymerization temperature ranging from about 120°C to 300°C; and

wherein said crosslinking component for said crosslinkable groups is selected from the group consisting of polyisocyanate, polyamine, ketimine, melamine, epoxy, polyacid and a combination thereof.

26. (Currently amended) A coating composition comprising crosslinkable and crosslinking components, wherein said crosslinkable component consists essentially of:

a copolymer having on an average 2 to 25 crosslinkable groups selected from the group consisting of hydroxyl, acetoacetoxy, primary amine, secondary amine, and a combination thereof; a weight average molecular weight ranging from about 1000 to 4500; a polydispersity ranging from about 1.05 to 2.5; wherein said copolymer is polymerized from a monomer mixture consisting of one or more non-functional acrylate monomers and one or more functional methacrylate monomers provided with said functional groups, and optionally one or both of: (i) ~~0-01%~~ up to 10% by weight of one or more functional acrylate monomers and (ii) ~~0-01%~~ up to 10% by weight of one or more non-functional methacrylate monomers ~~provided with said functional groups~~; and

wherein said crosslinking component for said crosslinkable groups is selected from the group consisting of polyisocyanate, ketimine, melamine, and a combination thereof.

Hintze-Bruning et al. (col. 1, line 5-21; col. 5, line 17-25) claim a coating composition comprising copolymers containing hydroxyl groups as a crosslinkable component as claimed, and polyisocyanate as a crosslinking component. The copolymers comprises from 2 to 10 weight percent of functional and non-functional acrylates or methacrylates (col. 6, line 33-34). Hintze-Bruning et al. (col. 5, line 5) clearly disclose the molecular weight (Mn of 2,500 to 5,000) which meets the molecular weight range as claimed. Regarding the claimed polymerization temperature, Hintze-Bruning et al. (col. 8, line 47-49) clearly state that the polymerization process is to be conducted at a temperature between 80 and 160 °C. Regarding the claimed number of crosslinkable group onto the prepared copolymers, Hintze-Bruning et al. clearly teach the use of more than one crosslinkable (hydroxyl containing) monomers in the disclosed

prepared copolymers. Since the molecular weight of the disclosed copolymers are between 2,500 to 5,000 and the molecular weight of acrylic monomers are greater than 100 g/mole, the crosslinkable groups on the disclosed copolymer should range from 25 to 50, which meets the average number of crosslinkable as claimed.

Regarding the Tg limitation of claim 6 and the VOC limitation of claim 7, in view of the substantially identical composition as claimed and the composition as disclosed in Rink et al., the examiner has a reasonable basis that the claimed Tg and the claimed VOC properties are inherently possessed in Rink et al. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to applicants to show otherwise. In re Best, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977); In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

Regarding claim 21 which requires the polymerization to take place at a reactor "gage pressure ranging from 0.1 to 2.86", the feature carries very little patentable weight since the claimed invention relates to a coating composition, where the pressure of a process can not change the composition make-up of the claimed coating composition.

In view of the substantially identical composition as claimed and the composition and molecular weights as disclosed in Rink et al., and in view of the substantially identical polymerization temperatures and initiators as claimed and the composition as disclosed in Rink et al., the examiner has a reasonable basis that the claimed polydispersity of 1.05 to 2.5 are inherently possessed in Rink et al. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to

applicants to show otherwise. In re Best, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977);  
In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

In view of the reasons set forth above, Claims 1, 3, 5-11, 13-16, 18-21, 26-30 are anticipated.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hintze-Bruning et al. (US 6,297,314) in view of Roesler et al. (US 2003/0232942 A1).



Hintze-Bruning et al. (col. 1, line 5-21; col. 5, line 17-25) claim a coating composition comprising copolymers containing hydroxyl groups as a crosslinkable component as claimed, and polyisocyanate as a crosslinking component. The copolymers comprises from 2 to 10 weight percent of functional and non-functional acrylates or methacrylates (col. 6, line 33-34). Hintze-Bruning et al. (col. 5, line 5) clearly disclose the molecular weight ( $M_n$  of 2,500 to 5,000) which meets the molecular weight range as claimed. Regarding the claimed polymerization temperature, Hintze-Bruning et al. (col. 8, line 47-49) clearly state that the polymerization process is to be conducted at a temperature between 80 and 160 °C. Regarding the claimed number of crosslinkable group onto the prepared copolymers, Hintze-Bruning et al. clearly teach the use of more than one crosslinkable (hydroxyl containing) monomers in the disclosed prepared copolymers. Since the molecular weight of the disclosed copolymers are between 2,500 to 5,000 and the molecular weight of acrylic monomers are greater than 100 g/mole, the crosslinkable groups on the disclosed copolymer should range from 25 to 50, which meets the average number of crosslinkable as claimed.

In view of the substantially identical composition as claimed and the composition and molecular weights as disclosed in Rink et al., and in view of the substantially identical polymerization temperatures and initiators as claimed and the composition as disclosed in Rink et al., the examiner has a reasonable basis that the claimed polydispersity of 1.05 to 2.5 are inherently possessed in Rink et al. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to

applicants to show otherwise. In re Best, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977); In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

The difference between the invention of claim 12 and Hintze-Bruning et al. is that Hintze-Bruning et al. are silent on a coating composition comprising isocyanatopropyl trimethoxy silane.

Roesler et al. (abstract; 0061) disclose polyurethane coating compositions that are very similar to the polyurethane coating compositions of Rink et al., in that both disclose the use of polyols, and polyisocyanates for preparing polyurethane based coating compositions. In view that both Roesler et al. and Rink et al. are in the field of endeavors of developing novel polyurethane coating compositions, it would have been obvious to one of ordinary skill in art to incorporate the isocyanatopropyl trimethoxy silane teaching of Roesler et al. (page 5, 0067) into composition teachings in Roesler et al. to obtain the invention of claim 12, motivated by the expectation of success of developing a coating system that is moisture curable (page 1, 0001; page 5, 0069-0074).

9. Claims 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hintze-Bruning et al. (US 6,297,314) in view of Gupta et al. (US 6,867,250).

Hintze-Bruning et al. (col. 1, line 5-21; col. 5, line 17-25) claim a coating composition comprising copolymers containing hydroxyl groups as a crosslinkable component as claimed, and polyisocyanate as a crosslinking component. The copolymers comprise from 2 to 10 weight percent of functional and non-functional

acrylates or methacrylates (col. 6, line 33-34). Hintze-Bruning et al. (col. 5, line 5) clearly disclose the molecular weight (Mn of 2,500 to 5,000) which meets the molecular weight range as claimed. Regarding the claimed polymerization temperature, Hintze-Bruning et al. (col. 8, line 47-49) clearly state that the polymerization process is to be conducted at a temperature between 80 and 160 °C. Regarding the claimed number of crosslinkable group onto the prepared copolymers, Hintze-Bruning et al. clearly teach the use of more than one crosslinkable (hydroxyl containing) monomers in the disclosed prepared copolymers. Since the molecular weight of the disclosed copolymers are between 2,500 to 5,000 and the molecular weight of acrylic monomers are greater than 100 g/mole, the crosslinkable groups on the disclosed copolymer should range from 25 to 50, which meets the average number of crosslinkable as claimed.

In view of the substantially identical composition as claimed and the composition and molecular weights as disclosed in Rink et al., and in view of the substantially identical polymerization temperatures and initiators as claimed and the composition as disclosed in Rink et al., the examiner has a reasonable basis that the claimed polydispersity of 1.05 to 2.5 are inherently possessed in Rink et al. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to applicants to show otherwise. In re Best, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977); In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

The difference between the invention of claim 17 and Hintze-Bruning et al. is that Hintze-Bruning et al. are silent on a coating composition comprising aldimine.

However, Hintze-Bruning et al. (col. 9, line 64 to col. 10, line 2) disclose that the use of blocked isocyanate are suitable for the disclosed coating composition. Gupta et al. (col. 31, line 21-30) disclose the advantages of using latent reactive functionality (where block isocyanate are used) in a coating composition comprising polyurethane (col. 18, line 26-30).

The term "latent reactive" functionality within the meaning of the present invention and, as would clearly be understood by those persons of ordinary skill in the art, refers to reactive functionality which is blocked or masked to prevent premature reaction. As examples of a latent reactive functionality may be mentioned ketamines and aldimines (amines blocked, respectively, with ketones and aldehydes), amine-carboxylate salts; and blocked isocyanates such as alcohol (carbonates), oxime, and caprolactam blocked variations.

In view of the substantially identical endeavors of developing blocked isocyanate-containing based coating, it would have been obvious to one of ordinary skill in art to incorporate the aldimines teachings of Gupta et al. into Hintze-Bruning et al. to obtain the invention of claim 17.

### ***Response to Arguments***

10. Applicant's arguments filed December 28, 2009 have been fully considered but they are not persuasive. Applicants argue that Hintze-Bruning et al. do not teach the OH number. However, the claims as written fail to support such argument because the claims are silent on any OH numbers. Regarding the polydispersity being claimed, in view of the substantially identical process, the examiner has a reasonable basis to believe that the polydispersity of 1.05 to 2.5 being claimed is inherently possessed by

the process of Hintze-Bruning et al. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to applicants to show otherwise. In re Best, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977); In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

Regarding applicants' argument that the claimed invention requires non-functional acrylate and functional methacrylate monomers, the examiner disagrees because the newly amended claimed feature "up to" indicates that both non-functional acrylate and functional methacrylate monomers can have zero values which means that the monomers can be optional ingredients.

In view of the reasons set forth above, the rejections set forth are proper.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William K. Cheung whose telephone number is (571) 272-1097. The examiner can normally be reached on Monday-Friday 9:00AM to 2:00PM; 4:00PM to 8:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David WU can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov> you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/William K Cheung/  
Primary Examiner, Art Unit 1796

William K. Cheung, Ph. D.  
Primary Examiner  
January 19, 2010